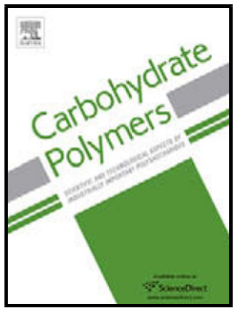

Title: Bleaching of cotton fabric with tetraacetylhydrazine as bleach activator for H_2O_2

Authors: Kai Liu, Xuan Zhang, Kelu Yan

PII: S0144-8617(18)30137-1
DOI: https://doi.org/10.1016/j.carbpol.2018.01.111
Reference: CARP 13261

To appear in:

Received date: 25-7-2017
Revised date: 26-1-2018
Accepted date: 31-1-2018

Please cite this article as: Liu, Kai., Zhang, Xuan., & Yan, Kelu., Bleaching of cotton fabric with tetraacetylhydrazine as bleach activator for H2O2.*Carbohydrate Polymers* https://doi.org/10.1016/j.carbpol.2018.01.111

Bleaching of cotton fabric with tetraacetylhydrazine as bleach activator for H_2O_2

Kai Liu [a,b]·Xuan Zhang [b]*· Kelu Yan [a,b]*

[a] *National Engineering Research Center for Dyeing and Finishing of Textiles, Donghua University, Shanghai 201620, PR China*

[b] *College of Chemistry, Chemical Engineering and Biotechnology, Donghua University, Shanghai 201620, PR China*

Corresponding to Xuan Zhang:

Tel: +86 021 67792619

Fax: +86 021 67792619

E-mail: xzhang@dhu.edu.cn

Corresponding to Kelu Yan:

Tel: +86 021 67792732

Fax: +86 021 67792608

E-mail: klyan@dhu.edu.cn

Highlights

- TH was synthesized and firstly used to bleach cotton knitted fabric.
- TH could significantly promote the WI and H_2O_2 decomposition rate.
- H_2O_2/TH system could lower bleaching temperature and save energy.
- Bimolecular decomposition was investigated by using DMA as fluorescent probe of $^1O_2$.
- A bleaching mechanism of the H_2O_2/TH system was proposed.

Abstract

Tetraacetylhydrazine (TH) as bleach activator for H_2O_2 cotton bleaching was synthesized and characterized by ^{1}H NMR, ^{13}C NMR and MS spectra. TH has better solubility than that of TAED. The CIE whiteness index (WI), H_2O_2 decomposition rate and bursting strength were employed to investigate